

E. L. BOWERS.
SEWING MACHINE.
APPLICATION FILED FEB. 1, 1908.

944,843.

Patented Dec. 28, 1909.

Fig. 1

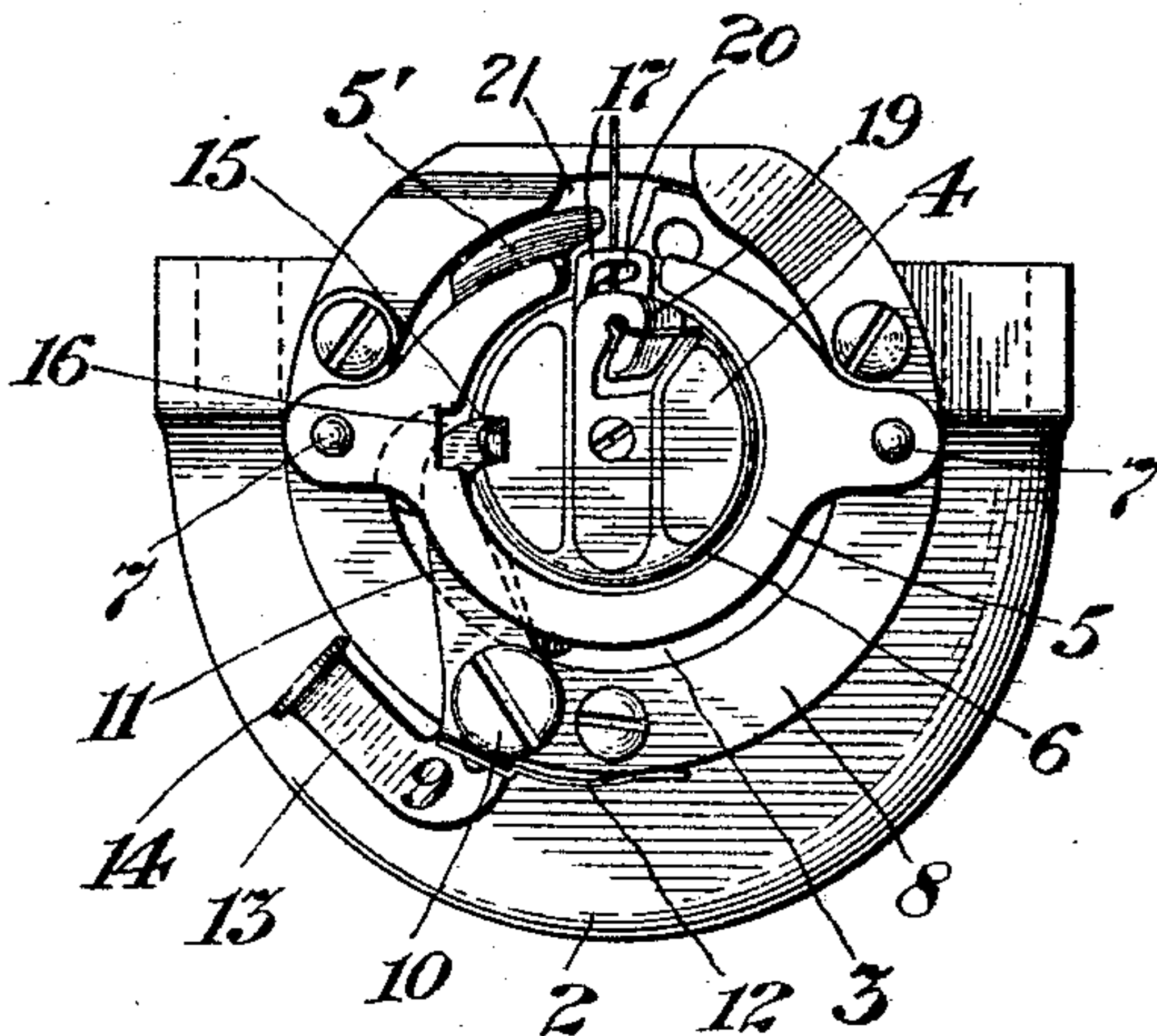


Fig. 2

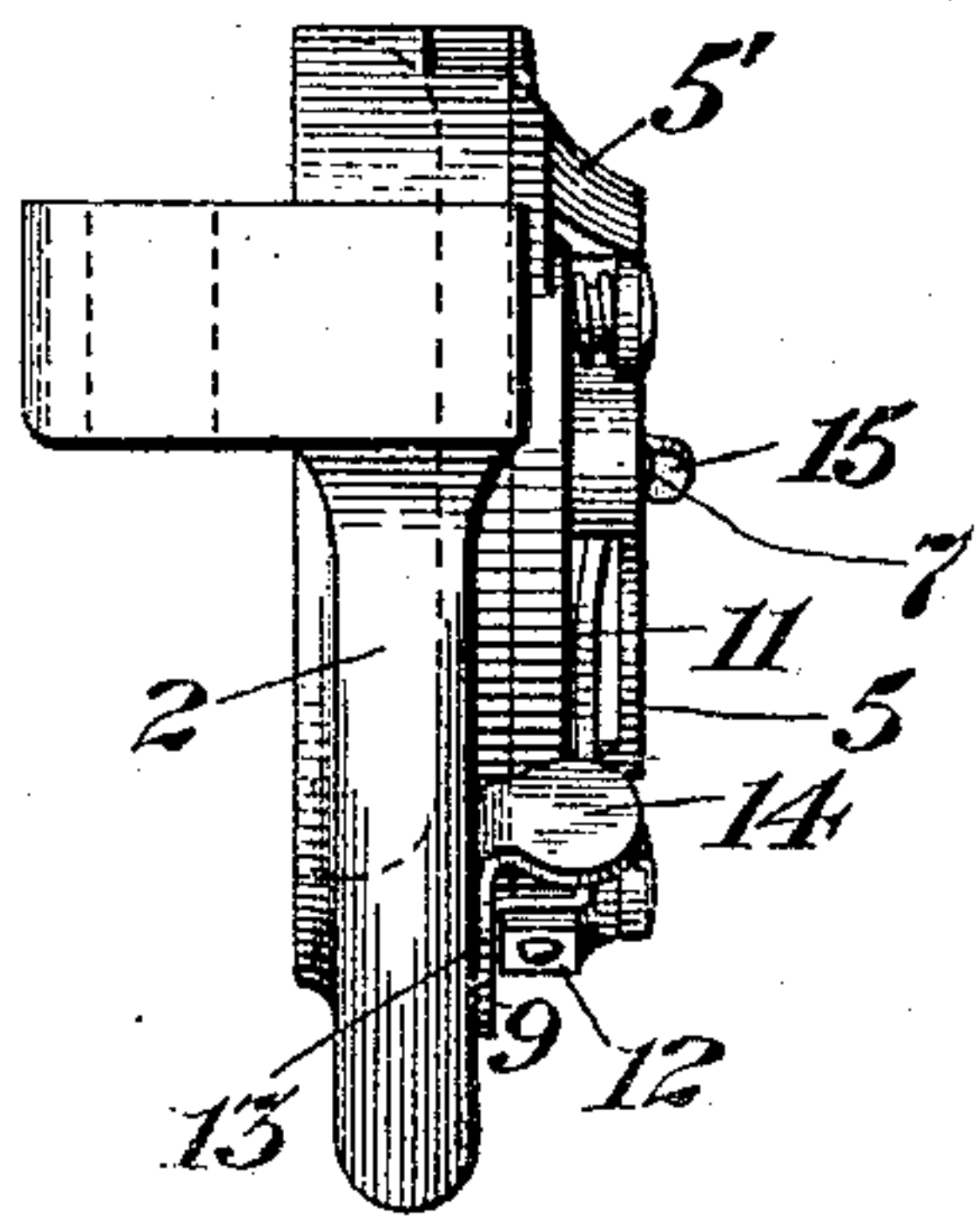


Fig. 3

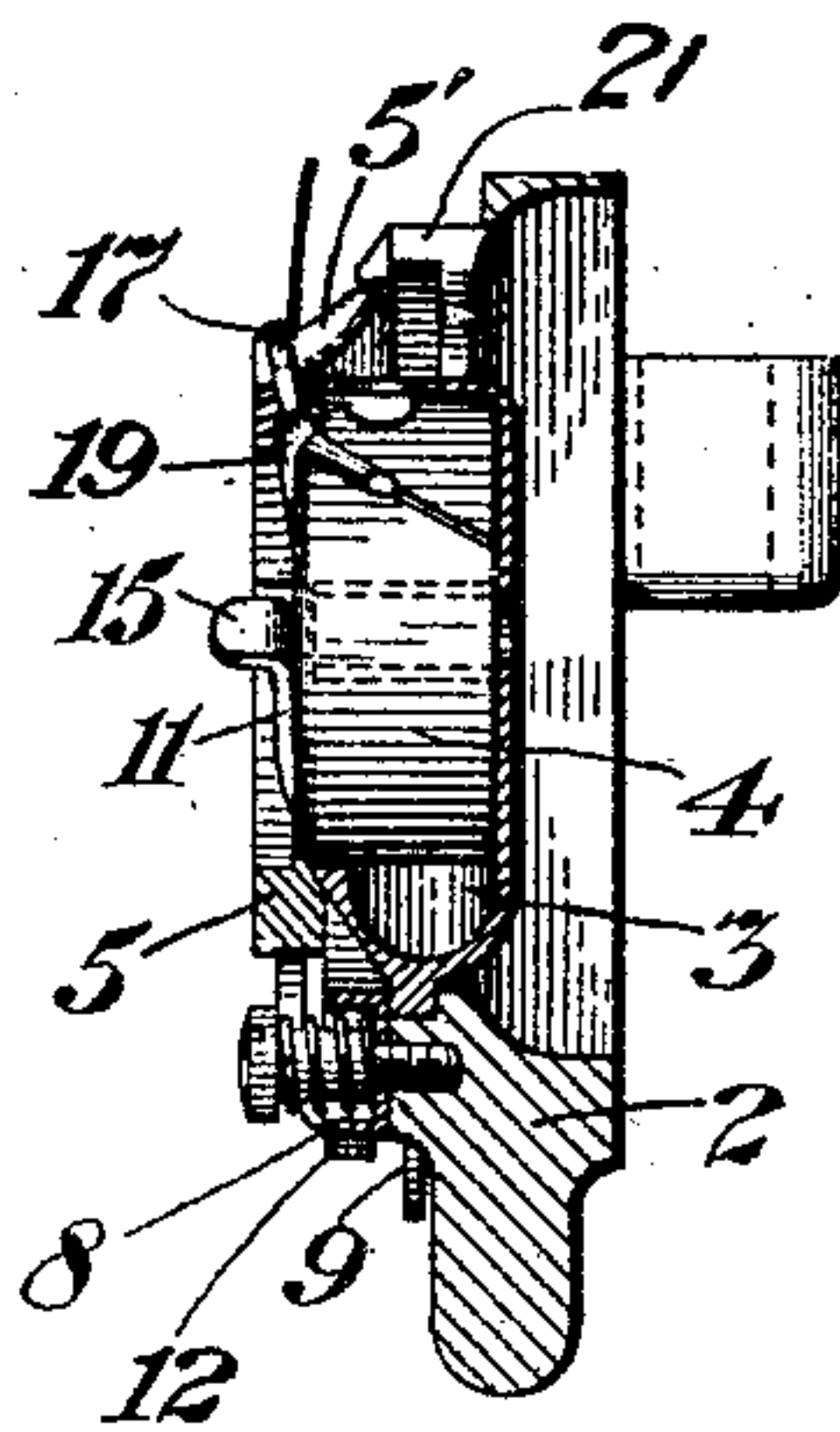
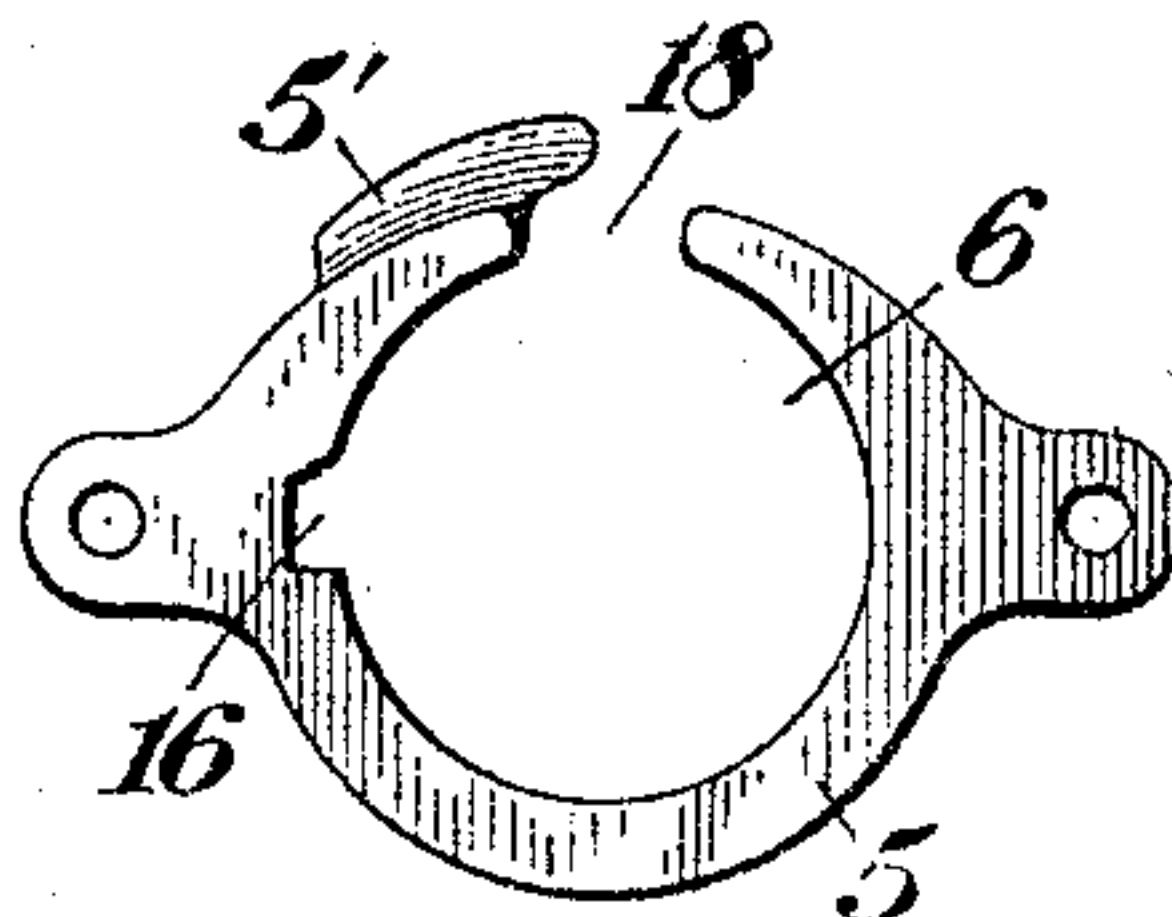


Fig. 4



WITNESSES
Chas. J. Clagett
Jane L. Blanc.

INVENTOR
Edward L. Bowers
BY
Chas. J. Clagett
ATTORNEY

UNITED STATES PATENT OFFICE.

EDWARD L. BOWERS, OF ORANGE, MASSACHUSETTS, ASSIGNOR TO THE NEW HOME SEWING MACHINE COMPANY, OF ORANGE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

SEWING-MACHINE.

944,843.

Specification of Letters Patent.

Patented Dec. 28, 1909.

Application filed February 1, 1908. Serial No. 413,729.

To all whom it may concern:

Be it known that I, EDWARD L. BOWERS, a citizen of the United States, and resident of Orange, in the county of Franklin and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

My invention relates to improvements in that class of sewing machines employing a rotary shuttle having a bobbin-case and bobbin removably contained therein, and it consists in the novel features of construction and combinations of parts as hereinafter set forth in detail and pointed out in the claims.

Referring now to the accompanying drawings forming part of this specification, in which I have shown only so much of a sewing machine as is necessary to illustrate my invention.

Figure 1 is a front elevation of a shuttle race-way frame with its supported shuttle bobbin-case, and associated parts embodying my invention; the said frame being shown detached from its operative position at the under side of the sewing machine bed-plate. Fig. 2 is an edge view of the same, looking from the left as viewed in Fig. 1. Fig. 3 is a central vertical section through certain parts of the same, looking from the right as viewed in Fig. 1. Fig. 4 is a detail view of one of the parts to be hereinafter referred to.

Similar reference characters indicate like parts in the several figures of the drawings. To explain in detail, the frame or hanger 2, adapted to be suitably connected in proper position to the under side of a sewing machine bed-plate and being provided with a shuttle race-way; the shuttle 3 supported to operate in said race-way and being provided with a bobbin case chamber; and the bobbin-case 4 removably contained within said chamber in the shuttle, are all of usual construction and arrangement as found in the "New Home" rotary-shuttle sewing machine.

In accordance with my present invention, I locate a so-called guide plate or ring 5 in stationary position immediately forward of the shuttle, which guide plate is provided with an opening 6 of substantially the same diameter as that of the shuttle bobbin-case chamber and in position registering therewith, whereby the bobbin-case entered through said opening will be guided thereby

to its operative position within the shuttle and without the operator's fingers coming in contact with the shuttle.

The guide-plate 5 may be supported in its described position by any suitable means, the same in the present case being attached by screws 7, 7, to the face side of the ring 8 which forms the front wall of the shuttle race-way.

As a means for removably retaining the bobbin-case within the shuttle after being entered therein, I provide a latch in the form of a lever 9 which is pivoted at a point between its ends to the face side of the race-way ring 8 by a pivot-screw 10, with one arm 11, constituting the latch proper, arranged for operative movement in a plane parallel with that of the guide-plate and in position at the rear side thereof as shown. This arrangement of the latch arm 11 in position at the rear side of the guide-plate provides a compact arrangement of the parts and also provides against possibility of accidental bending or disarrangement of the latch.

The latch is yieldingly held in a normal operative position with the end of its arm 11 in latching position at the front side of the bobbin-case, by means of a suitable spring, herein shown as a flat spring 12 attached at one end to the latch with its free end bearing against the race-way ring 8.

The latch may be operated to retain the bobbin-case within the shuttle in any suitable manner, but in the present case and as a simple means for so doing, I have formed the outer arm 13 of the latch lever with a forwardly-turned lip 14 as a bearing for the thumb or finger in pressing the latch to its open or releasing position against the pressure of the holding spring 12. The lip 14 bearing against the outer periphery of the race-way ring also operates as a means to limit the movement of the latch in one direction under the action of the spring, while the movement of the latch in the opposite direction under the pressure of the operator's thumb or finger is limited by a forwardly-turned lip 15 at its inner end engaging the guide-plate within a notch therein.

As a means for holding the bobbin-case against rotary movement with its containing shuttle, I have provided the bobbin-case with an arm 17 projecting beyond its per-

riphery which loosely engages the guide-plate within an opening 18 therein, the engagement between the parts being sufficiently loose to permit of the passage of the
 5 needle-thread loop therebetween in the usual manner. This arm 17 is preferably an extension of the bobbin-case plate with which the bobbin-thread tension-spring 19 coöper-
 10 ates in tensioning the bobbin-thread, and is provided with an eye 20 at its upper end through which the bobbin-thread is passed to be guided and held thereby in a position well forward of the path of the shuttle hook to prevent possibility of its being ac-
 15 cidentally caught by the latter.

In the operation of the machine, after the needle thread loop has been cast off by the shuttle and is being drawn up by the take-up in the usual manner, the said thread by reason of its slack condition and its practically free and unobstructed movement at such time has a tendency to twist upon itself and so cause liability of imperfect stitching. To prevent this undue twisting of the slack
 25 thread, I have provided the guide-plate 5 at a point adjacent to its opening 18 and to the usual needle-opening 21 of the race-way frame with a rearwardly projecting extension 5' the under side of which partially
 30 overlies the path of movement of the thread in being drawn up by the take-up and is operative to engage the slack thread and produce sufficient tension or drag thereon to prevent undue twisting of the same.

35 As my improvements herein described may be employed in connection with a hook, as well as with a shuttle, I have employed the term "looper" in the following claims, to cover either form of device.

40 What I claim is:

1. In a sewing machine, the combination with a looper race-way frame, a looper supported in said frame and having an open bobbin-case chamber in its face side, and a
 45 bobbin-case removably contained in said chamber, of a stationary guide-plate located in position forward the face side of the looper and the face side of the looper race-way frame and having a bobbin-case guide-opening therein registering with the bobbin-
 50 case chamber in the looper, and a pivoted bobbin-case latch operative in a plane parallel with that of the guide-plate and in position at the rear side of the latter.

55 2. In a sewing machine, the combination with a looper having an open bobbin-case chamber in its face side, and a bobbin-case removably contained in said chamber, of a stationary guide-plate located in position
 60 opposite the face side of the looper and having a bobbin-case guide-opening therein registering with the bobbin-case chamber in the looper, and a pivoted bobbin-case latch operative in a plane parallel with that of the
 65 guide-plate and in position at the rear side

of the latter and having means for coöperation with the guide-plate to limit the movement of the latch in one direction.

3. In a sewing machine, the combination with a looper race-way frame, a looper supported in said frame and having an open
 70 bobbin-case chamber in its face side, and a bobbin-case removably contained in said chamber, of a stationary guide-plate located in position forward the face side of
 75 the looper and the face side of the looper race-way frame and having a bobbin-case guide-opening therein registering with the bobbin-case chamber in the looper, and a bobbin-case latch comprising a pivoted le-
 80 ver one arm of which is operative as an operating handle, the said bobbin-case engaging arm being operative in a plane parallel with that of the guide-plate and in position at the rear side of the latter. 85

4. In a sewing machine, the combination with a looper race-way frame, a looper supported in said frame and having an open
 90 bobbin-case chamber in its face side, and a bobbin-case removably contained in said chamber, of a stationary guide-plate located in position forward the face side of the looper and the face side of the looper race-
 95 way frame and having a bobbin-case guide-opening therein registering with the bobbin-case chamber in the looper, the said bobbin-case and guide-plate having means for co-
 100 operation to hold the bobbin-case against rotary movement with the looper, and a pivoted bobbin-case latch operative in a plane
 105 parallel with that of the guide-plate and in position at the rear side of the latter.

5. In a sewing machine, the combination with a looper race-way frame, a looper supported in said frame and having an open
 110 bobbin-case chamber in its face side, and a bobbin-case removably contained in said chamber, of a stationary guide-plate located in position forward of the face side of the looper and the face side of the looper race-
 115 way frame and having a bobbin-case guide-opening therein registering with the bobbin-case chamber in the looper and also having a part thereof partially overlying the path of movement of the needle-thread loop for
 120 engaging said loop subsequent to its cast off by the shuttle, for the purpose set forth.

6. In a sewing machine, the combination with a looper race-way frame, a looper supported in said frame and having an open
 125 bobbin-case chamber in its face side, and a bobbin-case removably contained in said chamber, of a stationary guide-plate located in position forward of the face side of the looper and the face side of the looper race-
 130 way frame and having a bobbin-case guide-opening therein registering with the bobbin-case chamber in the looper and also having a rearwardly projecting extension partially
 135 overlying the path of movement of the

needle-thread loop for engaging said loop subsequent to its cast off by the shuttle, for the purpose set forth.

7. In a sewing machine, the combination
5 with a looper race-way frame, a looper supported in said frame and having an open bobbin-case chamber in its face side, and a bobbin-case removably contained in said chamber, of a stationary guide-plate remov-
10 ably secured in position forward of the face side of the looper and the face side of the looper race-way frame and having a bobbin-case guide-opening therein registering with the bobbin-case chamber and also having a
15 rearwardly projecting extension partially overlying the path of movement of the needle-thread loop for engaging said loop subsequent to its cast off by the shuttle, for the purpose set forth.

20 8. In a sewing machine, the combination with a looper race-way frame and a looper supported in said frame and having an open bobbin-case chamber in its face side, of a stationary guide-plate located in position
25 forward of the face side of the looper and the face side of the looper race-way frame and having a bobbin-case guide-opening therein registering with the bobbin-case chamber in the looper and also having an
30 opening therethrough at its upper side, and a bobbin-case removably contained in the chamber in the looper and having a peripheral arm extending into the said opening

in the guide-plate at the upper side thereof, the said bobbin-case arm having a thread- 35 guide adjacent to its upper end.

9. In a sewing machine, the combination with a rotary looper race-way frame and a rotary looper supported in said frame, of a support located in position forward of the
40 face side of the race-way frame having a rearwardly projecting extension partially overlying the path of movement of the needle thread loop for engaging said loop subsequent to its cast off by the looper, substan- 45 tially as and for the purpose set forth.

10. In a sewing machine, the combination with a rotary looper race-way frame having a needle-opening, and a rotary looper supported in said frame, of a stationary plate
50 located in position forward of the face side of the race-way frame and having a rearwardly projecting extension adjacent to the said needle-opening in the race-way frame and in position partially overlying the path 55 of movement of the needle thread loop for engaging said loop subsequent to its cast off by the looper, substantially as and for the purpose set forth.

Signed at Orange, in the county of Frank- 60 lin, and State of Massachusetts, this 17th day of January, A. D. 1908.

EDWARD L. BOWERS.

Witnesses:

W. P. CONRAD,
E. C. BUELL.